IN THE CLAIMS:

Consistent with the amendment submitted on May 5, 2004, please amend the claims as follows:

1.(currently amended) A method for analyzing the performance of a system, comprising the steps of:

directing light from at least one ~~verticle~~vertical cavity surface-emitting laser (VCSEL) ~~to an encoded portion of a rotating member~~towards identically encoded portions formed on planar surfaces formed on and located near inner perimeter surfaces of two disks independently rotatable on two shafts representing input and output mechanism of the sytsem;

transmitting a portion of the light towards a detector from said encoded portions ~~of said rotating member~~;

detecting a transmitted portion of the light using the detector; and

recovering information from said transmitted portion of the light, said information containing performance characteristic data of said system including torque between the two shafts.

2.(previously cancelled)

3.(currently amended) The method of claim 1 wherein said encoded portions ~~of said rotating member comprises~~ comprise a bar code.

4.(currently amended) The method of claim 1 wherein said encoded portions ~~of said rotating member~~ comprises at least one measuring feature formed on a planar surface of said ~~rotating member~~disks.

5.(cancelled).

6.(cancelled).

7.(currently amended) The method of claim 1 further comprising the step of:

shaping said encoded portion of said ~~rotating member~~disks to increase transmission of said transmitted light in a particular direction.

8.(currently amended) The method of claim 1 further comprising the step of:

transmitting at least one light beam from said encoded portions of said ~~rotating member~~disks to interact with at least one other light beam to form Moirè fringes on a sensor.

9.(original) The method of claim 1 further comprising the step of:

assessing said system utilizing said performance characteristic data.

10.(original) The method of claim 9 further comprising the step of:

generating an electrical feedback signal from information recovered from said transmitted portion of the light; and

providing said electrical feedback signal to an input of said system, thereby improving said performance characteristic data of said system.

11.(currently amended) An apparatus for analyzing the performance of a system ~~having a~~ including two rotating disks independently attached to facing end of input and output shafts and a torsion bar interconnecting the input and output shafts ~~member therein~~, said apparatus comprising:

at least one directing element that directs light from a ~~verticle~~vertical cavity surface-emitting laser (VCSEL) in order to intercept an encoded portion of said ~~rotating member~~disks;

at least one transmitting element associated with said encoded portion that transmits a transmitted portion of said light from said encoded portion of said rotating members; and

at least one detector that detects the transmitted portion of said light to recover performance information maintained therein, wherein said performance information ~~contains performance characteristics of said system~~includes data about torque between the input and output shafts.

12.(original) The apparatus of claim 11 further comprising:

recovery mechanism that recovers information about a performance characteristic of said system.

13.(cancelled).

14.(original) The apparatus of claim 11 wherein the directing element comprises an optical lens.

15.(previously cancelled)

16.(original) The apparatus of claim 11 wherein said encoded portion of said rotating member comprises a bar code.

17.(currently amended) An apparatus for detecting the relative motion between at least two rotating members in a system having a ~~verticle~~vertical cavity surface-emitting laser (VCSEL) for generating a light beam, said apparatus comprising:

a first encoded portion~~transmissive mechanism~~ located on a surface of a first rotating member, said first encoded portion facing a second encoded portion located on a surface of a second rotating member, said first and second encoded portions used for the transmission of images created using said light beam ~~from an encoded portion of said first rotating member~~;

~~transmissive mechanism located on a second rotating member for the transmission of said light beam through said encoded portion of said first rotating member;~~ and

a detector for detecting Moirè fringes formed as a result of the interaction of the images from said first and second encoded portions of said first and second rotating members, wherein said detector is located proximate to said system.

18.(original) The apparatus of claim 17 further comprising:

a sensor for analyzing a signal from said detection mechanism, thereby monitoring the motion of said Moirè fringes, wherein said sensing mechanism is located proximate to said system.

19.(previously amended) The apparatus of claim 18 further comprising:

a collimating lens located proximate said system, wherein said collimating lens renders said light beam from said light source into a highly collimated parallel light beam, thereby directing said VCSEL to intercept said encoded portion on said first rotating member.

20.(previously cancelled)

21.(original) The apparatus of claim 17 wherein at least one light beam from said VCSEL is rendered highly collimated by a convex collimating lens before said at least one light beam intercepts at least one encoded portion of said first and second rotating members.

22.(previously amended) The apparatus of claim 21 wherein said at least one encoded portion comprises:

a transparent polymer film having parallel lines of opaque bar code imprinted on an upper surface of said transparent polymer film; and

wherein said opaque parallel lines are spaced evenly with a width of a gap formed there between, wherein the width of the gap corresponds to the width of said opaque parallel lines; and

wherein said transparent polymer film is fixed to a rotating member.

23.(original) The apparatus of claim 22 wherein:

said transparent polymer film comprises a bar code when adhered to a rotating disk; and

wherein said bar code is adhered to a planar surface of a rotating member.

24.(currently amended) The apparatus of claim 23 wherein:

said light beam intercepts said first and second encoded portions of said rotating members at an angle of incidence of about 90°; and

wherein said light beam carries an image of said bar code after being transmitted ~~through~~over said encoded portions of said first and second rotating members.

25.(original) The apparatus of claim 22 wherein an image from said first encoded surface interacts with an image of said second encoded surface after said light beam is transmitted through said second rotating surface to produce Moirè fringes.

26.(original) The apparatus of claim 22 wherein Moirè fringes are observed on a sensor.

27.(original) The apparatus in claim 26 wherein said sensor is located at a Talbot distance from a point where said light beam exits a bottom of said encoded surface of said second rotating member.

28.(original) The apparatus of claim 17 wherein said detector is located on a sensor.

29.(original) The apparatus in claim 17 wherein said encoded portion of the first rotating member is shaped to increase said transmitted light in a particular direction.

30.(original) The apparatus of claim 17 wherein said encoded portion of the first rotating member is shaped to form an optical encoder for encoding information representing performance characteristics of said system.

31.(original) The apparatus of claim 17 wherein said encoded portion of the first rotating member is provided as a vernier on said rotating member to increase accuracy for sensing motion thereof.

32.(original) The apparatus of claim 17 wherein said encoded portion of the first rotating member comprises features recessed into a surface or edge of said rotating member.